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Burnt Corral Vegetation Project

Range Specialist Report

**North Kaibab Ranger District, Kaibab National Forest
Coconino County, Arizona**

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Introduction

Livestock grazing has been an important component of the western lifestyle and economies of Kane and Coconino counties (Utah and Arizona respectively) since the late 1800's. Many people living in communities that surround the Kaibab National Forest participate in or have connections to ranching activities and the values associated with it. The Kaibab National Forest currently permits livestock grazing to continue this tradition while balancing grazing activities with forage production, resource conditions and other uses and values for the Forest.

Four primary components 2014 Kaibab Land and Resource Management Plan are to permit opportunities for livestock grazing that:

1. Provides opportunities for ranching activities and livestock grazing that contributes to the stability and social, economic and cultural aspects of rural communities.
2. Produce herbaceous vegetation that provides adequate forage for permitted livestock.
3. Manage livestock grazing activities consistent with other desired conditions.
4. Construct allotment fencing that allows safe passage of wildlife.

Law, Policy and Regulation Regarding Range and Grazing Management

The principal statutes governing or supporting the management of livestock grazing within the National Forest System include but are not limited to, the following:

Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. §§528 et seq.). This Act declares that the purposes of the national forest include outdoor recreation, range, timber, watershed and fish and wildlife. The Act directs the Secretary of Agriculture to administer national forest renewable surface resources for multiple use and sustained yield.

Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 as amended by the National is a United States federal law which authorizes long-range planning by the United States Forest Service to ensure the future supply of forest resources while maintaining a quality environment. RPA requires that a renewable resource assessment and a Forest Service plan be prepared every ten and five years, respectively, to plan and prepare for the future of natural resources. It is found in the United States Code at Title 16, Chapter 36.

Forest Management Act (NFMA) of 1976. Section 6 of the Act codified at 16 U.S.C. §§1600 et seq. The National Forest Management Act reorganized, expanded and otherwise amended the Forest and Rangeland Renewable Resources Planning Act of 1974, which called for the management of renewable resources on national forest lands. The National Forest Management Act requires the Secretary of Agriculture to assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the National Forest System. It is the primary statute governing the administration of national forests.

Public Rangelands Improvement Act of 1978. This Act establishes a national policy and commitment to improve the conditions on public rangelands, requires a national inventory and consistent federal management policies, and provides funds for range improvement projects. The Act also requires the Forest Service to update and maintain on a current basis an inventory of range conditions and a record of trends of conditions on the public rangelands.

Forest Service Manual 2200 – Rangeland Management - Forest Service, is authorized to develop, administer, and protect range resources, and permit and regulate grazing use of all kinds and classes of livestock on all National Forest System (NFS) lands and on other lands under Forest Service control.

Kaibab National Forest Plan. The Kaibab National Forest is managed under a Land and Resource Management Plan (LRMP; 2012) that provides direction for managing each resource area within the Forest. Forest-wide guidelines in the LRMP for livestock grazing include:

- Livestock management should favor the development of native cool season grasses and forbs.
- Post-fire livestock grazing should not be authorized until Forest Service range staff confirm range readiness.
- Livestock use in aspen areas should be authorized at levels that are consistent with the desired conditions for aspen regeneration and establishment.

Description of Proposed Action

The North Kaibab Ranger District (NKRd), through a collaborative process with interested stakeholders, proposes to mechanically thin about 15,000 acres and use wildland fire, alone or in conjunction with mechanical treatment, on about 28,000 acres, see Table 1 and Figure 1 in Appendix A of the Environmental Assessment. The proposed action is based on consultation with diverse stakeholders and guided by a quantitative exploration of data that allowed explicit consideration of multiple values and perceived risks associated with this project and the earlier Kaibab Forest Health Focus. See the Environmental Assessment (EA) for details on the purpose and need for action and for full descriptions of the Proposed Action, mitigation measures, and desired conditions. Specific mitigation measures for NNIPS are below.

Table 1. Burnt Corral Vegetation Management Project treatments.

Treatment Type(s) Proposed	Relevant Strata	Maximum Estimated Acreage
Wildland Fire		

Fire only ¹	Ponderosa pine plantations, Bridger fire area, sensitive soils, steep slopes, seed cuts approaching desired conditions	11,530
Mechanical Thinning and Wildland Fire:		
Thin mixed conifer from below to 12"	Mexican Spotted Owl Habitat	360
Thin from below to 14"	Goshawk Nest Areas	2,520
Thin from below to 16"	Old Growth Ponderosa Pine	2,130
Create .5-3 acre early seral openings on 10%, thin to 80 basal area on 90%	Ponderosa Pine Creating Early Seral Openings	8,080
Thin to 80 basal area	Ponderosa Pine with Existing Early Seral Openings	3,470
Total Project Area		28,090

Affected Environment

The Burnt Corral project areas is located within portions of the Central Summer and Central Winter grazing allotments. The portion of the project area that includes the Central Summer allotment is grazed every other year by 600 to 1,000 head of cattle. Although grazing is permitted in the Central Winter Allotment, it is not currently being grazed. Grazing in this allotment will commence when structural improvements are repaired to standard and research shows that grazing can be initiated without undo risk of spreading invasive weeds.

The proposed management activities are expected to have some level of short-term (zero to five years post treatment) negative impact to forage production and livestock grazing within the project area and possibly the surrounding area as well. In the longer term, (five to twenty years post treatment) benefits to both forage production and increased options for livestock management are expected.

Issues

The key issues of comments received during the (public?) scoping period (when?) of the proposed action were largely concerned with large tree retention and smoke impacts from fire. Only one comment was received regarding non-native invasive plant species, specifically the potential for the invasion of cheatgrass (*Bromus tectorum*) from nearby areas into the project area.

¹ This includes activities such as preparation thinning and other light mechanical and hand thinning treatments associated with appropriate use and management of prescribed fire and managed wildfire.

Effects Analysis

Fire

The short-term (zero to three years post treatment) effects of the proposed fuel treatments and activities of personnel and equipment are expected to decrease forage production and limit grazing opportunities within the burned and adjacent areas where activities take place. These activities and the reduced availability of forage may require alterations in established grazing patterns for permitted livestock and could require temporary fencing or additional herding to protect succulent regrowth from being grazed. Livestock grazing within these areas could be resumed once herbaceous vegetation has become established sufficiently to protect soils from erosion and invasion of undesirable plant species.

The long-term effects of the proposed fuel treatments are expected to be positive with the exception of an increased risk of introduction and spreading of undesirable vegetation, particularly invasive weed species. Cheatgrass, is a highly invasive species that could quickly become established in the project area and would increase the risk for future fires and would decrease the amount and quality of forage that would be produced in the project area. Mitigation activities as discussed in the Proposed Action and the Invasive Species Specialist report should be implemented for all the proposed treatment activities.

The proposed fuels treatment is expected to remove or reduce the density of overstory vegetation (trees and shrubs) and increase the amount of sunlight that can reach the forest floor. This increased sunlight and reduced competition for water and soil nutrients is expected to favor herbaceous forage production for 15 to 20 years post treatment. This would provide additional forage for livestock and wildlife in areas where forage production is currently low. The additional areas of herbaceous forage production would allow greater flexibility for grazing permittees and increase management options.

Perhaps the greatest benefit from the proposed fuel treatments would be the reduced risk of high intensity wildfire. The fires expected in this project would be low intensity, “cool” fires which would pose minimal loss of desirable soil components (biota, nutrients and structure). High intensity fires typically have longer lasting negative effects on soils, plant species composition, and forage production.

Implementation of the No-Action alternative would eliminate the short-term (zero to three years post treatment) effects of the Proposed Action (disruption of planned grazing management activities) and allow livestock grazing to continue uninterrupted by the proposed burning activities and time needed for herbaceous vegetation to reestablish in the project area. However the No-Action alternative would continue the current risk of high intensity wildfire that would be expected to impose an even more substantial disruption, both short and long term (15 to 20 years or more), to livestock grazing and forage production on the North Kaibab. This disruption would be due to the loss of structural range improvements (fences, corrals, water developments) and the reduced production of palatable forage that would likely result from high intensity fire followed by soil erosion and the invasion of non-desirable invasive plant species.

Mechanical Thinning

The short-term (zero to two years post treatment) effects of the proposed mechanical thinning treatments are expected to decrease forage production within the treatment areas where physical disturbance to soils and forage occurs. These activities and the reduced availability of forage may require alterations in established grazing patterns for permitted livestock and could require temporary fencing or additional herding to protect succulent regrowth from being grazed. Livestock grazing within these areas could be resumed once herbaceous vegetation has become established sufficiently to protect soils from erosion and invasion of undesirable plant species.

Implementation of the No-Action alternative would eliminate the short-term (zero to three years post treatment) effects of the Proposed Action (disruption of planned grazing management activities) and allow livestock grazing to continue uninterrupted by the proposed mechanical treatments and the time needed for herbaceous vegetation to reestablish in the project area. However the No-Action alternative would continue the current risk of high intensity wildfire that would be expected to impose an even more substantial disruption, both short and long term (15 to 20 years or more), to livestock grazing on the North Kaibab. This disruption would be due to the loss of structural range improvements (fences, corrals, water developments) and the reduced production of palatable forage that would likely result from high intensity fire followed by soil erosion and the spread of non-desirable invasive plant species.

Range Structural Improvements

Numerous range structural improvements are located within the Burnt Corral project area and should be protected from damage due to timber harvest, thinning and burning activities. Table 2 identifies the name and type each improvement.

The planned thinning and burning activities are expected to produce both positive and negative effects for the range structural improvements within the project area. Anticipated negative effects include direct physical damage caused by machinery or created breaches in fences where needed to provide access to vehicles and equipment; and unavoidable burning of wood posts and poles and heat damage to fence wire and metal T-posts. Soils exposed by mechanical disturbance or burning activities are also susceptible to erosion with possible sedimentation into stock ponds and cattle guards.

Table 2. Structural Range Improvements within the Burnt Corral Project Area

Improvement Name	Type	Size	Material	Condition/Notes
Little Mountain/ Ranger Pass pasture fence	Fence	4.5 mi	Barbed wire	Poor (needs reconstruction)
Central Summer/Ranger Pass allotment fence	Fence	4.4 mi	Barbed wire	Fair

Central Summer/ Little Mountain allotment fence	Fence	2.4 mi	Barbed wire	Good to Fair
Pine Flat pond fence	Fence	.2 mi	Post & Pole	Poor
West Lake pond fence	Fence	.3 mi	Post & Pole	Poor (needs reconstruction)
Road Hollow pond fence	Fence	.1 mi	Post & Pole	Poor
Indian Hollow pond fence	Fence	.2 mi	Post & Pole and Barbed Wire	Fair (Adjacent to project area)
Burnt Corral pond fence	Fence	.1 mi	Post & Pole	Poor (needs reconstruction)
West Lake Corral	Corral	.2 mi	Post & Pole	Failed (needs reconstruction)
Big Saddle Corral	Corral		Post & Pole	Poor (Adjacent to project area)
Road Hollow Corral	Corral	.1 mi	Post & Pole	Fair
Burnt Corral Pond	Stock Pond		Earthen Dam	Reliable water
Lower Sawmill Pond	Stock Pond		Earthen Dam	Collects/holds little water
Pine Flat Pond	Stock Pond		Earthen Dam	Doesn't collect water
Indian Hollow Pond	Stock Pond		Earthen Dam	Doesn't collect water
Lookout Pond #1	Stock Pond		Earthen Dam	Collects/holds little water
Lookout Pond #2	Stock Pond		Earthen Dam	Doesn't collect/hold water
Lookout Pond #3	Stock Pond		Earthen Dam	Doesn't collect/hold water
Mid Burnt Corral Pond	Stock Pond		Earthen Dam	Doesn't collect/hold water
Road Hollow Pond	Stock Pond		Earthen Dam	Reliable water
Road 218c Pond	Stock Pond		Earthen Dam	Reliable water
Road 255 Pond	Stock Pond		Earthen Dam	Collects/holds little water
Road 255a Pond	Stock Pond		Earthen Dam	Reliable water
Road 274a Pond	Stock Pond		Earthen Dam	Doesn't collect/hold water
Road 274 a 1.2 mi Pond	Stock Pond		Earthen Dam	Collects/holds little water
Road 274 2.6 mi Pond	Stock Pond		Earthen Dam	Reliable water
Road 274 3.6 mi Pond	Stock Pond		Earthen Dam	Reliable water
Road 416 Pond	Stock Pond		Earthen Dam	Small size / holds water well
Sawmill Pond	Stock Pond		Earthen Dam	Doesn't collect/hold water
South Sawmill Pond	Stock Pond		Earthen Dam	Collects/holds little water
Upper Sawmill Pond	Stock Pond		Earthen Dam	Doesn't collect/hold water
Upper Sowats Pond	Stock Pond		Earthen Dam	Doesn't collect water
West Lake Ponds	Stock Pond		Earthen Dam	Reliable water
Willie Air Patch Pond	Stock Pond		Earthen Dam	Collects/holds little water
W58 Pond	Stock Pond		Earthen Dam	Collects/holds little water
Bee Spring Pipeline	Pipeline	2.5 mi	Pipeline	Poor (needs reconstruction?)

The most likely positive effects of the planned treatment activities for structural improvements include removal or thinning of dense shrub communities that currently hinder or prevent access for maintenance and reconstruction of fences and stock ponds, and removal of fencing material that was damaged in the Bridger Knoll fire. Removal of trees adjacent to existing allotment fences would also reduce the likelihood of trees falling across fences and the associated costs of maintaining and repairing damaged fences.

The reduced likelihood of high intensity wildfire would also help prevent or lower the amount and degree of damage that is likely to occur to existing improvements.

Currently, 17 of the 24 stock ponds within the project area currently collect none or very little water and provide minimal or no benefit to livestock or wildlife. The planned activities could include redirecting road drainages to divert runoff from roads into existing stock ponds rather than away from them as is currently the situation for several ponds in the project area.

Approximately one-half of the length of the Bee Spring Pipeline runs through the project area (along the north side of the 425 road) from Bee Spring to the Big Saddle cabin and stock ponds. This pipeline is not functioning and needs to be replaced with modern material.

Mitigation Measures

Fire:

To minimize impacts to livestock grazing - schedule and conduct burning activities (when and where it is feasible to do so) to those years when livestock are grazed in the Northern pasture of the Central Summer allotment. When this is not feasible, coordinate in advance with the District Range Conservationist so that impacts to grazing management and the grazing permittee can be minimized.

To avoid or minimize the risk of damage to range improvements - design fire prescriptions and utilize burn techniques to avoid or burn lightly through or away from existing fences and corrals and have personnel and equipment on hand to quickly extinguish fire from wooden fences and corrals that may ignite.

To minimize the risk for invasion or spread of weeds into the project area the following will items will need to be implemented prior to the initiation of fire or any ground disturbing activities:

- 1) Follow guidance contained in: Guidance for invasive species management in the southwestern region (USDA 2014).
- 2) Adhere to the following mitigation measures contained 2005 *Final Environmental Impact statement for Integrated Treatment of Noxious or Invasive Weeds for the Coconino, Kaibab, and Prescott National Forests*; Appendix B-Design Features, Best Management Practices, and Required Protection Measures:

- Conduct a pre-treatment inventory inside the project area. Areas to be inventoried will be prioritized in chronological order of anticipated activity timing before the project implementation begins. Areas likely to receive higher traffic like staging areas and along roads will be monitored first and random sampling of areas planned for treatment will follow in a timely manner. Areas where high infestations of aggressive invasive species are found, planned activities in that area will be delayed until the species is controlled.
- Prioritizing treatment of invasive species found during inventory. Invasive species found during inventory will be lumped together with current known infestations and treated using the most efficient means possible and in accordance with the Coconino, Kaibab, and Prescott ROD for Noxious and Invasive Weeds (2005). Once the invasive species is controlled, planned activity can begin.
- Continuation of monitoring during treatment. During project activity treatments, monitoring will be /event that a new population is detected, the activity that site will be stopped until invasive species is controlled.
- Minimize soil disturbance to the extent practical, consistent with project objectives. This includes the design and need of slash piles, utilizing existing roads where applicable to decrease the need for new skid trails and fire lines.
- Washing equipment and vehicles related to activities prior to entering project area. Contracting officer will be responsible for ensuring this occurs on all equipment tied to a contract. The district will also require this policy for any vehicles and equipment used on project that came from off the district. Equipment and vehicles will also be washed before leaving the district at a pre-determined “clean location”.
- Ensuring weed free gravel and other materials sources. Providers of gravel and other materials used will have the source of material inspected prior to importing into the project area. If deemed necessary, material will be staged at pre-determined location for additional monitoring.
- Optimize prescribed burning for appropriate timing. Burning will be conducted during seasons of the year that promotes lower fire intensities and hinders possible weed infestation. Burning in dry years will also be avoided for improved native plant response.
- Utilizing Certified Weed Free Seed Sources. In the event that an area needs to be seeded post treatment, seed purchased will be from a reputable dealer that can provide official weed free certification for each species utilized. Seed mix will consist only of native species and/or certified sterile annuals and require approval of District Range Conservationist or Forest Botanist. In the event that local seed harvesting is available and certified as “weed free”, that source will be utilized.
- Monitor after restoration treatment activity is completed. Random sampling will occur in areas that have been treated for at least two years after completion to monitor for invasive species

that may have been introduced or spread.

Cumulative Effects

The proposed activities (fire and mechanical treatments) have the potential to effect livestock production and range resources (herbaceous vegetation and range improvements) and both within and outside the project area. Anticipated effects include the spread of undesirable plant species into and out of the project area by natural dispersal mechanisms and through human activities that could carry seeds or vegetative propagules into or out of the project area.

The planned fuel treatments, both fire and mechanical, are expected to provide a reduced risk of high intensity wildfire within and outside the project area. The reduction of fuel loading inside the planning area will lessen the risk of fire from inside the area spreading to surrounding areas or other fires traveling through the project area and causing undesirable damage to range improvements, herbaceous vegetation (forage for livestock and wildlife) and soils.

The proposed thinning activities would also provide an economic benefit to grazing permittees by helping to maintain their options for livestock grazing on the Ranger District and reducing the likelihood of costly alterations of grazing plans and maintenance or reconstruction of range improvements both within and outside the planning area.

Climate Change

The most likely effects of climate change are reduced amounts of precipitation, alterations in annual precipitation patterns and warmer temperatures which may allow a change in plant species composition that favors warm season grasses and opportunistic invasive species that are able to outcompete native species.

Literature Cited

USDA Forest Service. 2014. Guidance for invasive species management in the Southwestern Region. US Dept. Agri., Forest Serv., Southwest Regions. TP-R3-16-26. Albuquerque NM.